South Carolina Electric Transportation Pilot

December 11 2019

Agenda:

National Electric Transportation Activity – Phil Jones, Executive Director, Alliance for Transportation Electrification

SC Electric Transportation Pilot – Lang Reynolds, Duke Energy

- Application Timeline
- Market Overview
- Program Overview

National Electric Transportation Activity

Phil Jones - Executive Director, Alliance for Transportation Electrification

SC Electric Transportation Pilot

Lang Reynolds – Director of Electric Transportation, Duke Energy

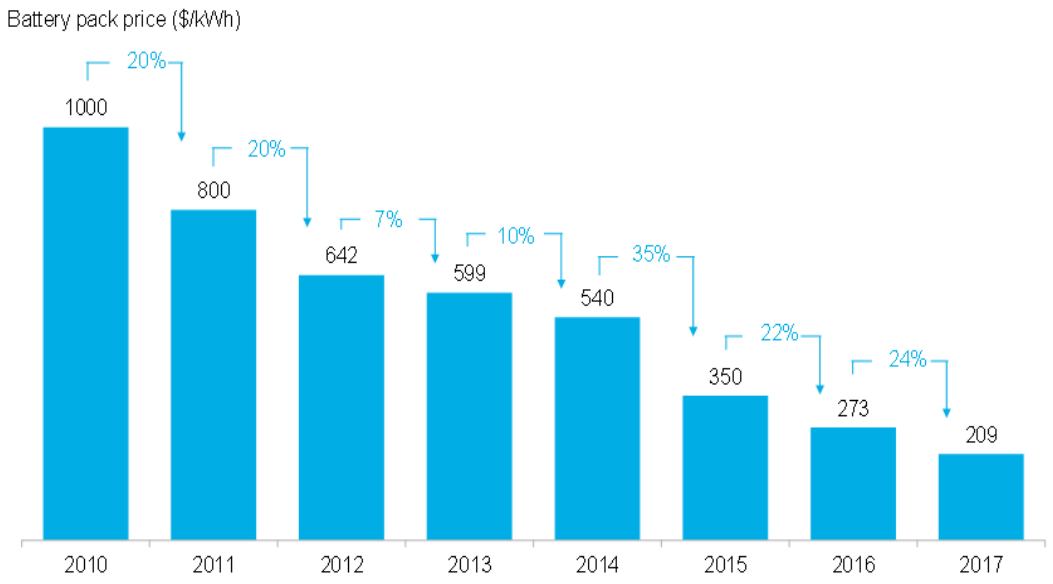
Application Timeline

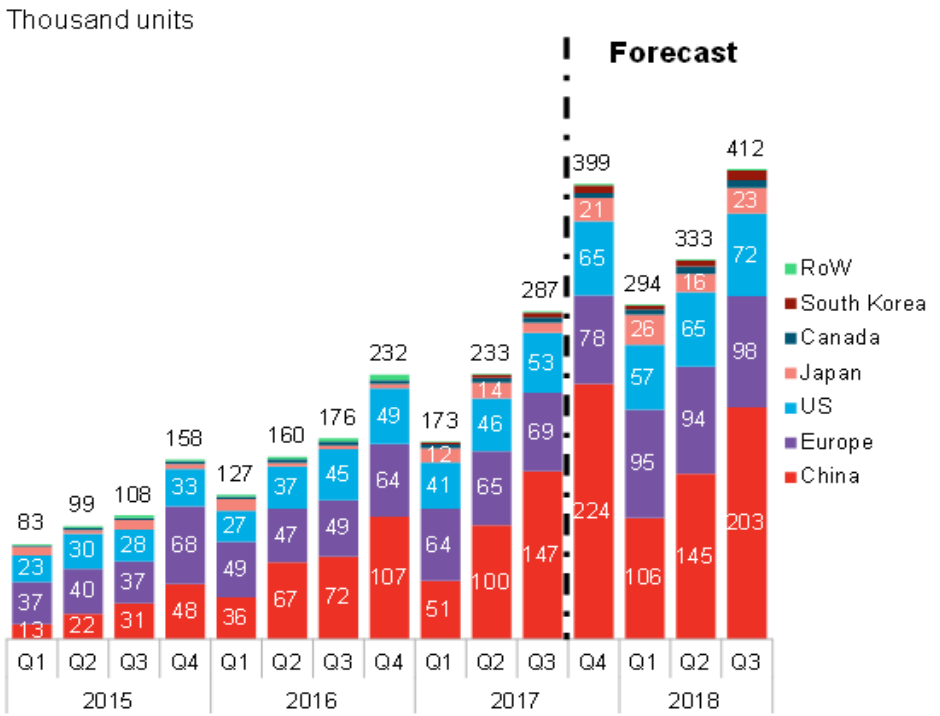
October 10, 2018	Applications for SC Electric Transportation Pilot filed (DEC DEP).
December 19, 2018	ORS requests to facilitate Stakeholder Working Group.
January 28, 2019	Stakeholder Working Group meets.
March 7, 2019	Stakeholder Working Group conducts follow-up conference call.
April 1, 2019	ORS files Stakeholder Working Group report. Duke Energy files amended application to reflect stakeholder input.
April – August 2019	ORS, stakeholders, and Duke Energy file comments

Strong current worldwide sales growth resulting from:

- Declining battery costs
- Policy mandates
- Increased consumer interest.

Lithium-ion battery pack prices have fallen 79% since 2010





- Market trends: affordable, long-range EVs are here:

Chevy Bolt

Tesla Model 3

Nissan LEAF 2.0

- Product announcements expanding– many additional models announced for 2020/21:

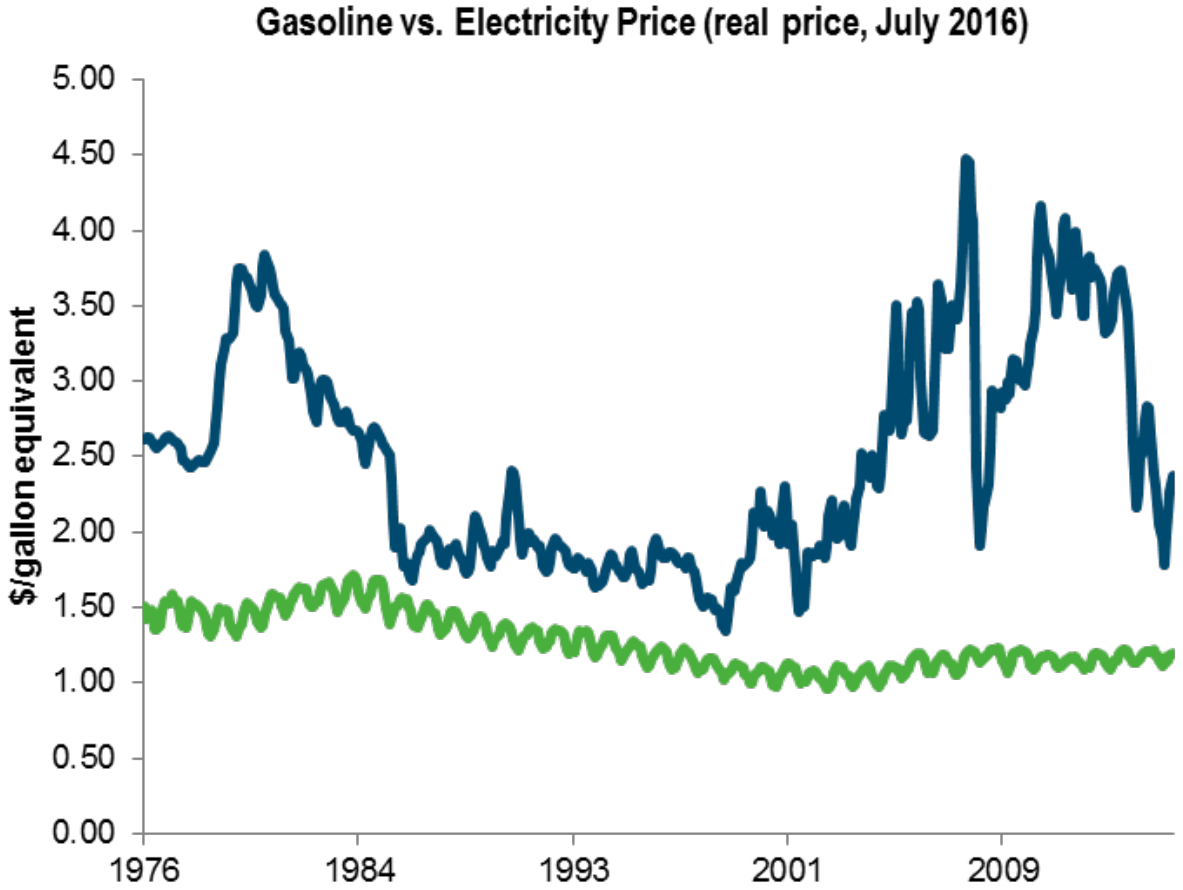
Audi E-Tron Sportback

VW ID Crozz

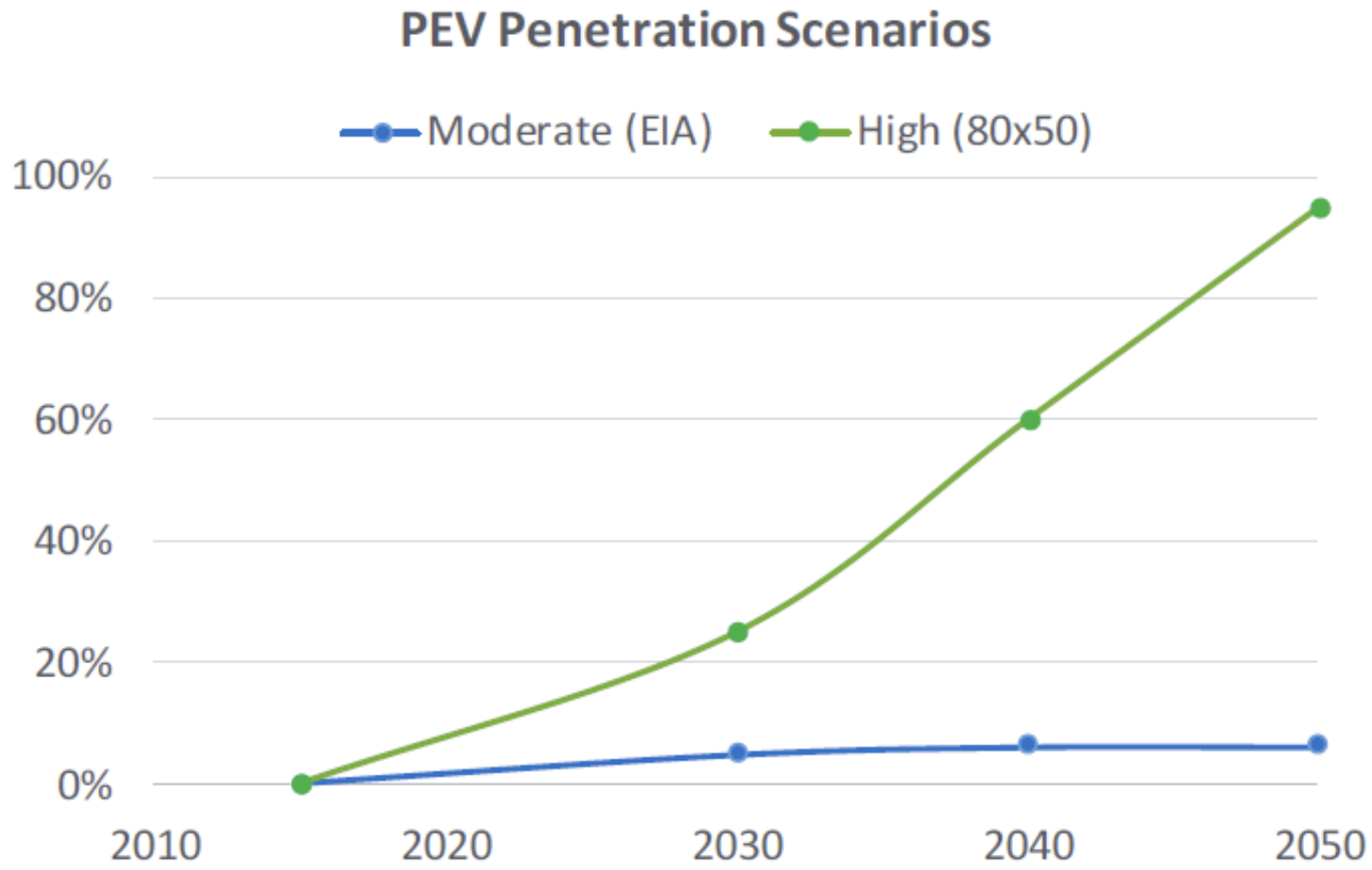
Mustang Mach-E

ELECTRIFICATION AS ECONOMIC DEVELOPMENT

- Fuel and maintenance cost savings remain in-state.
- Improved air quality facilitates continued industrial recruitment.
- Automakers are expanding electric drive manufacturing and supply chains.
- Potential for downward rate pressure to preserve attractive electricity costs.

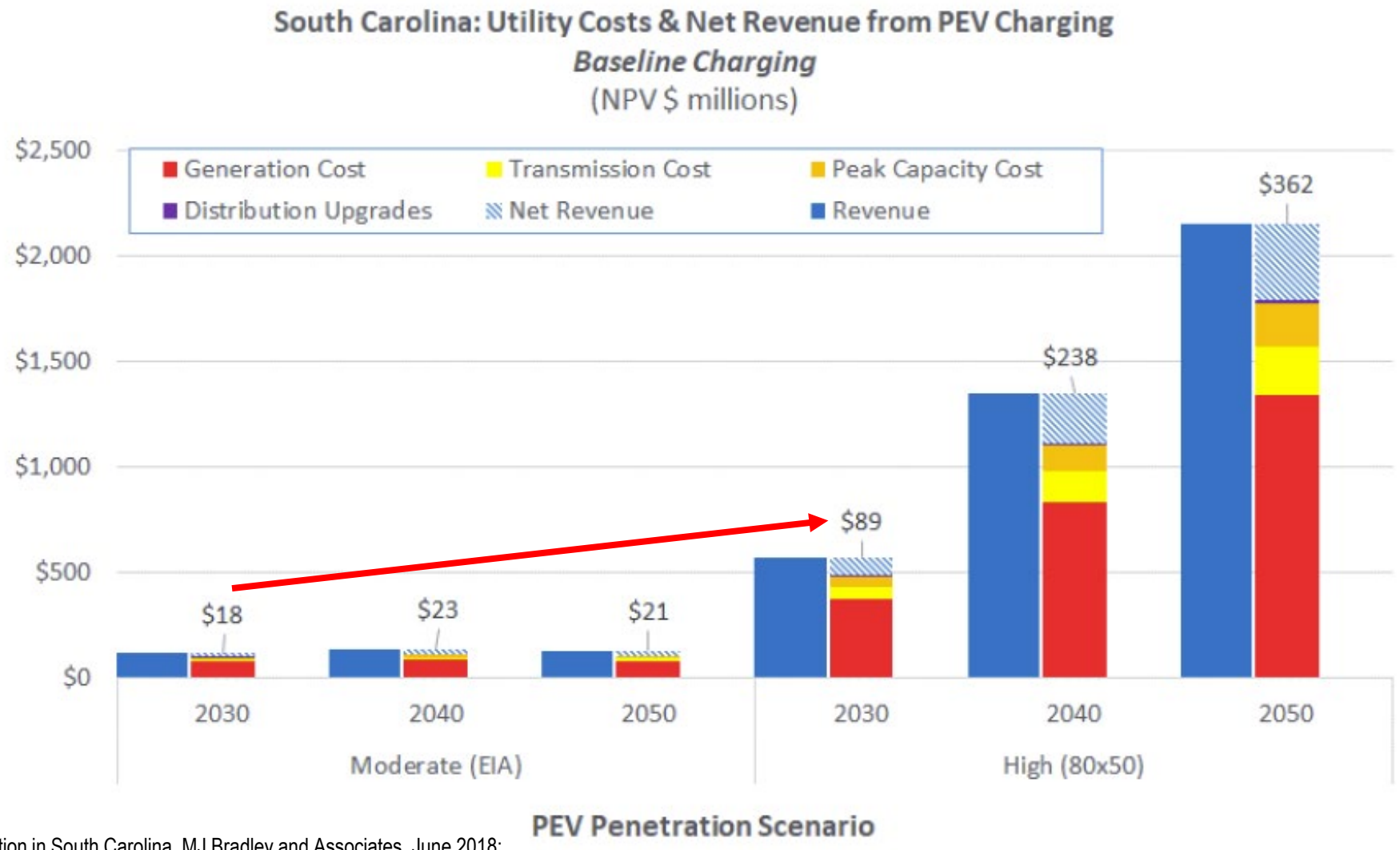


Background Study: Potential benefits of increasing EV adoption in South Carolina.



Source: Cost-Benefit Analysis of EV Adoption in South Carolina, MJ Bradley and Associates, June 2018: https://mjbradley.com/sites/default/files/SC%20PEV%20CB%20Analysis%20FINAL.pdf

Increasing EV adoption can create long-term downward rate pressure:



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South Carolina Electric Transportation Pilot Programs

Program Goals

Study and determine best practices for realizing the significant potential benefits associated with increased electric transportation adoption including:

- Customer benefits from increasing electric system utilization.
- Economic benefits from retaining fuel cost savings in state, improving the state energy trade balance, and deploying cutting-edge vehicle technology.
- Environmental benefits of improving local air quality.

- SC Electric Transportation Pilot - Overview

Residential EV Charging Program

EV School Bus Program

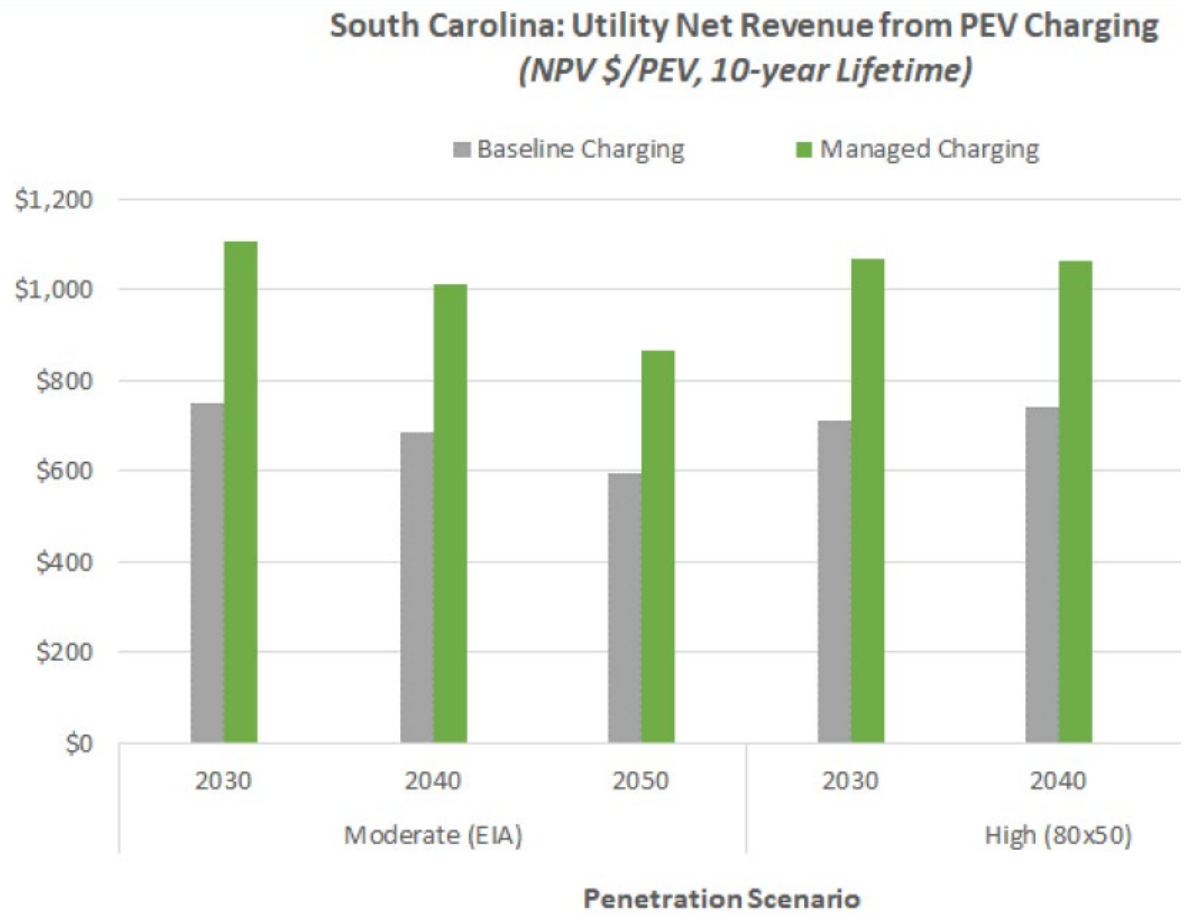
EV Transit Bus Program

Fast Charging Program

Residential EV Charging Program

- 400 customer limit (DEC). $500 rebate, $41.66 quarterly payment for up to $1000 total over 3 years.
- Customer must purchase and install customer choice of L2 EVSE.
- Year 1: Baseline data gathering
- Year 2: Experimental load management.
- Year 3: Experimental load management.

Figure 2 NPV of Projected Life-time Utility Net Revenue per PEV



Electric School Bus

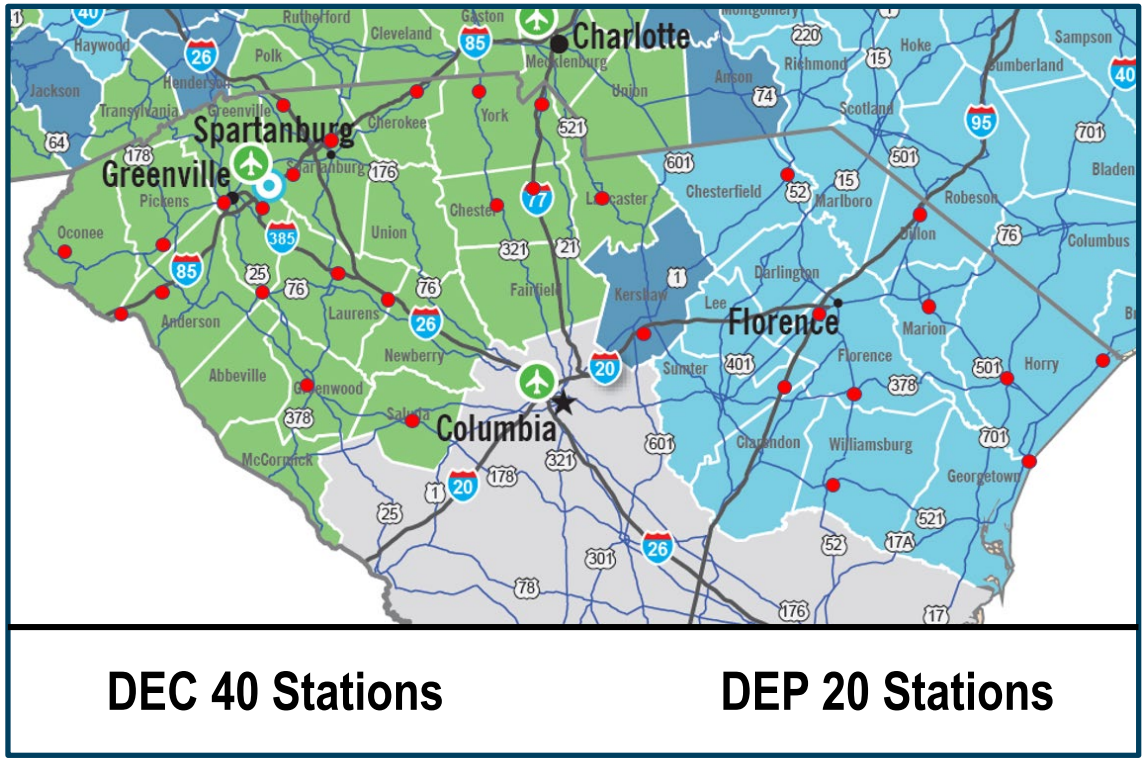
- Purpose: gather EV school bus charging data and determine possible value of bi-directional power flow from school bus batteries for backup power and other applications.
- Up to 10 (DEC) and 5 (DEP) EV School Bus Incentive limit.
- Customer-owned infrastructure, responsibility for ongoing O&M.
- Customer provides charging data and connectivity for V2G demonstration testing.
- Company retains ownership right to batteries after useful life in bus (8-12yrs).

Electric Transit Bus

DEC 20 Buses **$55,000 Incentive** **DEP 10 Buses**

- Customer-owned infrastructure, responsibility for ongoing O&M.
- Customer provides charging data and connectivity for possible load management.

Fast Charging Program



- Utility-owned and operated fast charging infrastructure.
- 100+ kW, future-proofed installations.
- “Fast Charge Fee” charged to drivers in line with statewide average charging costs.

South Carolina Electric Transportation Pilot – Program Overview

Segments	DEC	DEP	Goal
Residential EV Charging	400		Establish customer charging behavior and utility managed charging potential.
Electric School Bus	10	5	Demonstrate electric school bus capabilities for load balancing and backup power applications.
Electric Transit Bus	20	10	Establish transit bus charging behavior and utility managed charging potential.
Fast Charge Stations	40	20	Provide a foundational network of DC Fast Charging throughout South Carolina.

South Carolina Electric Transportation Pilot – Program Overview

South Carolina	2020	2021	2022	Total
DEC				
Capital	$ 2,000,000	$ 2,000,000	$ -	
O&M	$ 476,553	$ 2,751,208	$ 2,619,958	
Total	*$ 2,476,553*	*$ 4,751,208*	*$ 2,619,958*	*$ 9,847,719*
DEP				
Capital	$ 1,000,000	$ 1,000,000		
O&M	$ 106,880	$ 1,320,020	$ 1,263,770	
Total	*$ 1,106,880*	*$ 2,320,020*	*$ 1,263,770*	*$ 4,690,670*
Total Budget	*$ 3,583,433*	*$ 7,071,228*	*$ 3,883,728*	*$ 14,538,389*

- Residential EV Charging Program: $0.4M
- EV School Bus Rebate: $3.97M
- EV Transit Bus Rebate: $1.71M
- DC Fast Charge Stations: $7.83M
- Education/Outreach, Project Mgmt, Ongoing O&M $0.6M

CONCLUSION

Timing is right for an EV Pilot in SC

- Gather data from EV customers in SC.
- Explore different methods for EV charging load management.
- Support advanced market adoption of EVs in SC.
- Support public agencies deploying EV alternatives to reduce costs and emissions.
- Leverage available funding from VW Settlement and federal grant funding programs.